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U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

WATER SUPPLY OUTLOOK

FOR MONTANA

and
FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS
Collaborating with
MONTANA AGRICULTURAL EXPERIMENT STATION

AS OF
MAY 15, 1981



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WATER SUPPLY OUTLOOK

Runoff conditions have improved considerably in central Montana with the moisture and snow received during recent storms. Much of the moisture that fell was absorbed into the soil.

In south-central and southwestern Montana, there was some improvement in runoff conditions. West of the Divide, there was little improvement. The additional snowfall helped some, but the most significant factor is the delay in melt caused by the cool weather and the moisture received in the valley areas which has reduced irrigation demands.

As soon as the weather warms again, streamflows will increase with snow-melt runoff. The streams that have not yet reached their snowmelt runoff peaks should reach them soon. Stream levels will begin to drop quite soon after the peak because all areas still have much less snow water content than is normal for this time of year.

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STATEWIDE SNOW STORY

Recent storm activity has improved moisture conditions throughout much of central and southern Montana. Cool weather has delayed melt and helped to slow down runoff from snowmelt. Much of the moisture has soaked into the soil.

There was significant melt during the first week in May, prior to weather system development which began around the 7th and 8th. Precipitation in south-central and central Montana was substantial.

Crystal Lake SNOTEL site in the Snowy Mountains south of Lewistown received 9 inches of precipitation with over half of this amount coming as snow. Other locations in the Beartooth, Absarokee, Crazy, Big and Little Belt, Castle, Bridger, Tobacco Root and Highland Mountains, the north end of the Gallatin and Madison Ranges, and along the Continental Divide from Butte to Helena received 3 to 5 inches of precipitation with much of the moisture falling as snow at higher elevations.

In the southwestern portion of the state, 2 to 3 inches of moisture fell at SNOTEL sites. This is about average for the first half of May. Moisture north and west of a line passing through Anaconda and Great Falls varied between 1/2 inch and 2 1/2 inches. These amounts vary from 20 to 80 percent of average with the lowest percentage generally in the Bitterroot, Kootenai, and Flathead River drainages.

The moisture also helped improve the valley soil moisture conditions, particularly in the central, south-central, and southwestern portions of the state.

AGENCIES AND ORGANIZATIONS COOPERATING IN MONTANA SNOW SURVEYS

GOVERNMENT AGENCIES

Canada

Department of the Environment
Atmospheric Environment Service
Water Management Service
British Columbia Ministry of Environment
Inventory and Engineering Branch, Hydrology Section
Alberta Environment
Technical Services Division

Federal

Department of the Army - Corp of Engineers
Department of Agriculture - Forest Service
- Soil Conservation Service
Department of Commerce - National Environmental Satellite Service
- National Weather Service
Department of Interior - Bureau of Indian Affairs
- Fish and Wildlife Service
- Geological Survey
- National Park Service
- Water and Power Resources Service
Department of Energy - Bonneville Power Administration

STATE AGENCIES

Montana Conservation Districts
Montana Department of Fish, Wildlife and Parks
Montana Department of Natural Resources and Conservation
Montana State University - Agricultural Experiment Station
University of Montana - School of Forestry

PRIVATE ORGANIZATIONS

The Anaconda Company
Big Sky of Montana
Butte Water Company
Flathead Valley Community College
Montana Power Company

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

SNOW SURVEY DATA

SNOW		May 15, 1981		THIS YEAR		PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation	Last Year				Average	

ARCH FALLS	7350	5/15	EST	6.8	6.2	14.7
BADGER PASS	6900	5/18	63	30.4	27.2	45.0
BADGER PASS PILLOW	6900	5/18	SP	27.8	22.4	-
BANFIELD MOUNTAIN	5600	5/14	16	7.4	0.7	16.9
BANFIELD MOUNTAIN PILLOW	5600	5/14	SP	7.0	0.2	14.3
BAREE CREEK	5500	5/13	42	20.0	13.0	41.5
BAREE MIDWAY	4600	5/13	14	5.5	2.9	25.0
BAREE TRAIL	3800	5/13	0	.0	.0	.0
BARKER LAKES PILLOW	8250	5/15	SP	16.8	11.4	-
BASIN CREEK	7180	5/14	38	8.8	-	6.1
BASIN CREEK PILLOW	7180	5/14	SP	12.3	-	-
BEAGLE SPRINGS	8850	5/15	EST	6.4	4.0	-
BEAGLE SPRINGS PILLOW	8850	5/15	SP	5.1	2.7	-
BLACK PINE	7100	5/14	12	4.0	3.0	11.6
BLACK PINE PILLOW	7100	5/15	SP	8.0	4.0	12.4
BLOODY DICK	7600					
BLOODY DICK PILLOW	7600	5/15	SP	5.3	2.1	-
BLUE LAKE	5900	5/18	26	11.8	9.0	21.3
BOIS SOTS	8000	5/15	10	3.0	-	10.4
BOULDER MOUNTAIN	7950	5/15	EST	23.5	13.0	-
BOULDER MOUNTAIN PILLOW	7950	5/15	SP	20.5	12.4	-
BOX CANYON	6670	5/15	EST	0.5	.0	-
BOX CANYON PILLOW	6670	5/15	SP	0.2	0.0	-
BRIDGER BOWL	7250	5/13	70	24.6	11.6	31.1
BRIDGER BOWL PILLOW	7250	5/13	SP	23.7	8.1	29.2
CALVERT CREEK	6450	5/15	EST	.0	.0	-
CALVERT CREEK PILLOW	6450	5/15	SP	0.0	0.0	0.0
CAMP SENIA	7890	5/15	13	3.6	6.7	10.6
CASHE CREEK PILLOW	7800	5/15	SP	3.5	-	-
CLOVER MEADOW	8800	5/15	EST	17.5	9.0	-
CLOVER MEADOW PILLOW	8800	5/15	SP	16.4	10.8	-
COLE CREEK	7850	5/13	65	17.0	16.0	22.4
COLE CREEK PILLOW	7850	5/13	SP	16.5	14.8	20.9
COMBINATION	5600	5/14	0	.0	.0	1.0
COMBINATION PILLOW	5600	5/14	SP	.1	.0	1.1
COOKE STATION	8150	5/12	39	13.8	-	20.9
COPPER BOTTOM	5200	5/15	EST	0.0	.0	-
COPPER BOTTOM PILLOW	5200	5/15	SP	0.0	.0	0.5
COPPER CAMP	6950	5/15	EST	21.0	15.0	-
COPPER CAMP PILLOW	6950	5/15	SP	26.0	15.1	31.5
COPPER MOUNTAIN	7700	5/14	28	9.1	-	8.4
CRYSTAL LAKE	6100	5/15	EST	9.5	.0	-
CRYSTAL LAKE PILLOW	6100	5/15	SP	7.7	0.0	-
DARKHORSE LAKE PILLOW	8600	5/15	SP	21.3	-	-
DEADMAN CREEK PILLOW	6450	5/15	SP	.0	0.0	2.9
DEVILS SLIDE	8100	5/15	EST	18.8	17.7	28.7
DISCOVERY BASIN	7050	5/14	23	6.9	1.4	8.6
DIVIDE	7800	5/15	EST	1.0	0.0	7.3
DIVIOE PILLOW	7800	5/15	SP	3.7	0.0	7.6
EAST BOULDER S	9250	5/14	57	19.5A	14.5	35.2
EMERY CREEK	4350	5/15	EST	.0	-	-
EMERY CREEK PILLOW	4350	5/15	SP	0.0	-	-
FISH CREEK	8000	5/14	50	12.8	-	10.2
FISHER CREEK	9100	5/11	78	29.0	28.0	45.6
FISHER CREEK PILLOW	9100	5/11	SP	26.6	26.0	43.1
FROHNER MEADOWS	6480	5/15	EST	1.9	.0	5.4
FROHNER MEADOWS PILLOW	6480	5/15	SP	5.7	0.0	6.9
GARVER CREEK	4250	5/14	0	.0	.0	0.4
GARVER CREEK PILLOW	4250	5/14	SP	.2	.0	0.2
GRAVE CREEK	4300	5/14	0	.0	.0	8.9
GRAVE CREEK PILLOW	4300	5/14	SP	.0	.0	2.0
GRIZZLY PEAK	8400	5/13	59	16.0	18.1	23.7
GUNSIGHT LAKE	6300	5/18	54	25.4	19.9	42.6
HAND CREEK	5030	5/15	EST	.0	0.0	-
HAND CREEK PILLOW	5030	5/15	SP	.0	.0	-
HAWKINS LAKE	6450	5/14	57	26.1	16.6	33.0
HAWKINS LAKE PILLOW	6450	5/14	SP	25.6	20.5	31.5
HEART LAKE TRAIL	4800	5/17	0	.0	-	10.2
HELL ROARING DIVIDE	5770	5/14	44	20.0	7.6	26.1
HIGHWOOD DIVIDE	5650	5/14	9	3.1	0.0	-
HIGHWOOD STATION	4600	5/14	0	.0	.0	-
HOOD MEADOW	6600	5/15	EST	2.5	1.6	9.6
HOODOO BASIN	6000	5/17	67	33.6	30.0	50.5
HOODOO BASIN PILLOW	6000	5/17	SP	34.2	26.8	46.9
HOODOO CREEK	5900	5/17	61	28.7	28.0	46.2
INTERGAARD	6450	5/15	0	.0	-	7.7
KINGS HILL	7500	5/15	33	12.6	2.1	16.7
KRAFT CREEK PILLOW	4750	5/15	SP	0.0	-	-

SNOW		May 15, 1981		THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE				Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME		Elevation	Last Year				Average	

LAKEVIEW RIDGE	7400	5/15	EST	0.0	0.0	-
LAKEVIEW RIDGE PILLOW	7400	5/15	SP	0.0	0.0	-
LEMHI RIDGE	8100	5/15	EST	0.3	0.0	-
LEMHI RIDGE PILLOW	8100	5/15	SP	1.8	0.0	8.1
LICK CREEK	6860	5/15	EST	3.7	0.0	7.0
LICK CREEK PILLOW	6860	5/15	SP	3.4	0.0	6.3
LOOKOUT (ID)	5250	5/13	20	8.6	-	25.3
LOWER TWIN PILLOW	7900	5/15	SP	21.1	-	-
LUBRECHT FLUME PILLOW	4200	5/15	SP	0.0	0.0	.0
MANY GLACIER	4960	5/15	EST	0.0	0.0	-
MANY GLACIER PILLOW	4960	5/15	SP	0.0	0.0	-
MAYNARD CREEK	6210	5/13	22	5.8	0.0	11.4
MAYNARD CREEK PILLOW	6210	5/13	SP	7.7	3.5	9.7
MONUMENT PEAK PILLOW	8800	5/15	SP	17.2	-	-
MOUNT LOCKHART	6400	5/15	EST	8.5	11.0	22.2
MOUNT LOCKHART PILLOW	6400	5/15	SP	11.1	12.5	23.6
MULE CREEK PILLOW	8300	5/15	SP	14.5	-	-
NEVADA CREEK PILLOW	6480	5/15	SP	7.1	-	-
NEZ PERCE CAMP PILLOW	5580	5/15	SP	2.2	.2	-
NEZ PERCE CREEK	6500	5/14	0	0.0	-	3.6
NOISY BASIN	6040	5/15	EST	48.5	-	49.7
NOISY BASIN PILLOW	6040	5/15	SP	47.4	19.8	39.6
NORTH FK. ELK CREEK	6250	5/15	EST	0.0	0.0	5.4
NORTH FK. ELK CREEK PILLOW	6250	5/15	SP	0.0	0.0	5.5
NORTHEAST ENTRANCE	7400	5/12	5	.8	0.0	5.0
NORTHEAST ENTRANCE PILLOW	7400	5/12	SP	.5	0.0	4.2
PETERSON MEADOWS	7200	5/15	31	8.5	1.6	9.7
PETERSON MEADOWS PILLOW	7200	5/15	SP	9.9	2.2	10.3
PICKET PIN D	9450	5/14	67	19.0A	24.0	32.8
PICKFOOT CREEK	6650	5/15	EST	4.0	0.0	-
PICKFOOT CREEK PILLOW	6650	5/15	SP	1.8	0.0	-
PICNIC GROUNDS	6200	5/14	0	.0	-	-
PIKE CREEK PILLOW	5930	5/15	SP	11.2	-	-
PIPESTONE PASS	7200	5/14	19	3.4	-	-
PLACER BASIN F	8830	5/14	45	11.5A	-	25.6
POORMAN CREEK	5100	5/14	12	6.1	2.2	24.4
POORMAN CREEK PILLOW	5100	5/14	SP	7.2	1.4	24.2
PORCUPINE	6500	5/15	EST	1.3	0.0	-
PORCUPINE PILLOW	6500	5/15	SP	1.4	0.0	-
RED MOUNTAIN	6000	5/15	14	6.3	.5	15.6
ROCKER PEAK	8000	5/15	EST	18.3	8.5	16.6
ROCKER PEAK PILLOW	8000	5/15	SP	19.4	13.9	19.0
SADDLE MOUNTAIN	7940	5/15	EST	21.1	13.5	28.7
SADOLE MOUNTAIN PILLOW	7940	5/15	SP	28.1	14.3	29.1
SHOWER FALLS	8100	5/15	EST	21.5	20.3	32.5
SHOWER FALLS PILLOW	8100	5/15	SP	23.2	17.4	31.2
SILVER RUN	6630	5/15	4	1.2	0.0	3.3
SILVER RUN PILLOW	6630	5/15	SP	.7	0.0	-
SKALKAHU SUMMIT	7260	5/14	45	16.8	14.0	25.8
SKALKAHU SUMMIT PILLOW	7260	5/15	SP	18.3	17.8	-
SKYLARK TRAIL PILLOW	6200	5/15	SP	14.7	-	-
SPOTTED BEAR MOUNTAIN	7000	5/18	0	.0	.0	6.3
SPUR PARK	8000	5/15	55	21.5	9.5	24.3
SPUR PARK PILLOW	8000	5/15	SP	21.6	9.0	23.8
STAHL PEAK	6050	5/14	77	35.7	26.0	41.7
STAHL PEAK PILLOW	6050	5/14	SP	33.0	25.4	34.4
STAR LAKE E	9650	5/14	79	29.0A	29.0	53.3
STUART HILL	6500	5/15	0	.0	-	-
TEPEE CREEK	8000	5/15	EST	11.2	3.0	16.7
TEPEE CREEK PILLOW	8000	5/15	SP	8.1	2.0	12.7
TIMBERLINE CREEK	8850	5/15	41	13.1	14.8	19.9
TRINKUS LAKE	6100	5/18	70	32.4	17.1	41.4
TWELVENILE CREEK	5600	5/15	EST	0.5	0.0	8.4
TWELVENILE CREEK PILLOW	5600	5/15	SP	0.3	0.0	7.2
TWIN CREEKS	3580	5/18	0	.0	.0	.0
TWIN LAKES	6510	5/15	EST	23.9	25.0	43.0
TWIN LAKES PILLOW	6510	5/15	SP	26.1	24.0	40.3
WALDRON	5600	5/15	EST	0.0	0.0	1.0
WALDRON PILLOW	5600	5/15	SP	0.3	0.0	3.8
WARM SPRINGS	8250	5/14	49	16.8	-	-
WARM SPRINGS PILLOW	8250	5/14	SP	21.2	-	-
WEASEL DIVIOE	5450	5/14	50	22.6	15.6	31.3
WHITE MILL	8700	5/11	62	21.2	27.0	32.0
WHITE MILL PILLOW	8700	5/11	SP	15.0	23.0	26.3
WILLOW CREEK	6500	5/13	16	2.3	-	3.2
WOOD CREEK PILLOW	5960	5/15	SP	0.4	.0	-

Average based on 1963-77 period. A - Aerial observation; water content estimated.
SP - Snow Pillow observations; water content extra. - Estimated from SNOTEL.

